Together We Power The World

Report # 113251 Sample # 2 **UGI Development Company** Received 05/21/2012 Date May 31, 2012

Serial Number: 9944281	Equipment Number: GSU-T3	Container Id: LAB ASSIGNED # 00286		Phase: 3	
Substation Name: HCEC	Preservation System: Gas Blanketed	Miscellaneous Id:		Ambient Temp °C: 23	
Design Type: Core Type	Transformer Name: Unit 3	Second Name:		Humidity: 42	
Manufacturer: Kuhl	Transformer Type: Transformer	Sample Point: Main Tank Bottom		Top Oil Temp °C: 34	
MFR. Year: 2010	Maximum kV: 350	Sequence #:		Peak Temp °C:	
Cooling System:	Maximum MVA: 40	Sample Date/By: 5/16/2012 1:10:00 PM JD, JR		Fluid Level:	
Fluid Type: Mineral	XFMR Oil Capacity: 4600 Gallons	Appr Type: XFMR		Pressure PSI:	
LTC MFR./Model:	LTC Type:	LTC Tank Type :	LTC Capacity:	Filter LTC:	

Dissolved Gas Analysis The dissolved gas analysis is run in accordance with ASTM D 3612 and IEC 60567. Values are reported in ppm vol/vol at STP and calibrated with gas-in-oil standards. Values before August 15, 2002 are reported at NTP and calibrated with gas standards.

Report #	Sample Date	Top Oil Temp °C	Hydrogen (H2)	Oxygen (O2)	Nitrogen (N2)	Methane (CH4)	Carbon Monox. (CO)	Ethane (C2H6)	Carbon Dioxide (CO2)	Ethylene (C2H4)	Acetylene (C2H2)	Total Gas	COMB GAS	EST TCG %	C2H4/ C2H2	Comb Gas Rate ppm/day
113251	**05/16/2012**	**34**	**21**	**16600**	**60400**	**55**	**264**	**8.7**	**706**	**81**	**0**	**78136**	**430**	**0.37**	**0.00**	**0.15**
111090	02/21/2012	12	18	15600	55400	53	253	12	807	81	0	72224	417	0.38	0.00	

Overheating of cellulose, condition is of no immediate concern. Resample in 6 months for those units greater than 69 kV and 10 MVA.

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Oil Quality Tests

Report #	Sample Date	Top Oil Temp °C	Water Content	Relative Saturation	Color	D1816-1mm	Interfacial Tension	Neut. No.	PF25C	PF 100C	Specific Gravity (Rel. Density)	Visual
			ppm	%		kV	mN/m	mgKOH/g	%	%	60/60	
			D1533 IEC 60814		D1500	D1816	D971 ISO 6295	D974	D924	D924	D1298	D1524
113251	**05/16/2012**	**34**	**10**	**10**	**L 0.5**	**37**	**47**	**< 0.01**	**0.026**	**0.416**	**0.894**	**Clear & Bright**
111090	02/21/2012	12	2	5	0.5	38	46	< 0.01	0.024	0.186	0.894	Clear & Bright

The dryness rating of this insulation system (solid and liquid insulation) is considered to be in an acceptable condition for continued use. There may be some limitations when used in an overload capacity. The results indicate that the dielectric liquid is acceptable for continued in-service use.

Additional Oil Quality Tests

Report #	Sample Date	Top Oil Temp °C	Sulfur, Corrosive D 1275B	Sulfur, Corrosive Tarnish Level (D 1275B)
			D1275B	D130
113251	**05/16/2012**	**34**	**Non-corrosive**	**2b**

Sulfur by D1275B is acceptable.